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10/639,612	08/11/2003	Gregg D. Wilensky	07844-590001 / P543	5396
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SHIKHMAN, MAX				
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/639,612

**Applicant(s)**

WILENSKY, GREGG D.

**Examiner**

Max Shikhman

**Art Unit**

2624

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 1 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 28 February 2008.  
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-50 is/are pending in the application.  
4a) Of the above claim(s) 22-25 and 47-50 is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1-21 and 26-46 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
10) ☒ The drawing(s) filed on 15 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☒ Information Disclosure Statement(s) (PTO/SB08)  
Paper No(s)/Mail Date 02/11/2004.  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date: \_\_\_\_\_  
5) ☐ Notice of Informal Patent Application  
6) ☐ Other: \_\_\_\_\_

### DETAILED ACTION

1. Applicant's Election of Group I, claims 1-21 and 26-46 is made of record.

#### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-21, 26-46 rejected under 35 U.S.C. 103(a) as being unpatentable over  
Held PGPU-B-DOCUMENT-NUMBER: 20020126893, "Automatic color defect correction" in view of  
Luo PGPU-B-DOCUMENT-NUMBER: 20040037460 "Method for detecting objects in digital images".

#### **(i) Regarding Claims 1,26:**

1. A computer-implemented method for adjusting the color of pixels in an image, each pixel having one or more color values, the method comprising:

identifying a target region of pixels in the image that represent an object, (Held. Fig1: Face) the object having a shape ([0024] "shape") and a predefined set of features; and (Figs 13, 14)

adjusting the color (Fig1: correct red eyes) of one or more pixels in the target region (red eye) by an amount determined based on one or more probability functions ([0102])

"mask...probability whether a certain pixel belongs to a red-defect region...") and one or more spatial profile functions, (Fig 15. X Gradient, Y Gradient. [0083] "accumulator")

each probability function (mask) defining a probability value at each of the one or more pixels in the target region, (red eye) the probability value representing the probability that the pixel corresponds to one or more features (red-defect region) of the object, (red eye) ([0102] "mask...probability whether a certain pixel belongs to a red-defect region...")

each spatial profile function being defined based on one or more spatial properties of the object (Fig 15 Gradient) or one or more of its features.

Held discloses everything as described above except, A computer-implemented.

Luo discloses computer and program, [0010] FIG. 2 is a pictorial diagram of a computer system for implementing the present invention. [0017] FIG. 9 is an overview flowchart of the software program of the redeye pair classifier shown in FIG. 1.

As Luo discloses, it is desirable to have a software on a computer for removing red eye (40). This allows for implementation of many functions as in Fig 1. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention, to use Luo's method in Held, computer program implementing red-eye reduction. This allows for Held's automatic method to be implemented in software on a computer.

**() Regarding Claim 2,27:**

2. The method of claim 1 wherein the spatial properties include size.

([0019] [0068] "size")

**() Regarding Claim 3,28:**

3. The method of claim 1, wherein the spatial properties include shape.

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[[0024] "shape")

**() Regarding Claims 4,29:**

4. The method of claim 1, wherein the spatial profile function is a sigmoid function.

Held does not disclose expressly a sigmoid function.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use a sigmoid function. Applicant has not disclosed that using a sigmoid function provides an advantage, is used for a particular purpose or solves a stated problem. One of ordinary skill in the art, furthermore, would have expected Applicant's invention to perform equally well with either the accumulator ([0083], Fig 16. Fig 15.) taught by Held or the claimed sigmoid function because both functions perform the same function of spatial profile to locate eyes.

Therefore, it would have been obvious to one of ordinary skill in this art to use a sigmoid function in Held to obtain the invention as specified in claim 4.

**() Regarding Claim 5,30:**

5. The method of claim 1, wherein the spatial profile function is a Gaussian function.

[[0087] "accumulator, a Gaussian distribution")

**() Regarding Claim 6,31:**

6. The method of claim 1, wherein the spatial profile function is defined by a mask.

[[0102] "mask...Pixels along the borderlines receive a gradually decreasing probability")

**() Regarding Claim 7,32:**

7. The method of claim 1, wherein identifying a target region of pixels includes:  
receiving data that identifies the target region of pixels.

(Fig 15: Location of Eye. Fig 4: Detected Eye)

**() Regarding Claim 8,33:**

8. The method of claim 1, wherein: at least one of the probability values represents the probability that the pixel corresponds to either a first feature **or** a second feature.

([0102] "probability whether a certain pixel belongs to a red-defect region or not.")

**() Regarding Claim 9,34:**

9. The method of claim 1, wherein: the amount of adjustment increases as the probability value increases.

([0102] "Pixels along the borderlines receive a gradually decreasing probability")

**() Regarding Claim 10,35:**

10. The method of claim 1, wherein: the amount of adjustment increases as the probability value decreases. (As probability that this is not a normal eye increases, the adjustment increases.)

**() Regarding Claim 11,36:**

11. The method of claim 1 wherein adjusting the color includes:  
adjusting (Fig1: correct red eyes) a first pixel ([0091] "correction mask specifically pinpoints those pixels that have to be corrected") by an amount determined based on a first probability value ([0102] "Pixels along the borderlines receive a gradually decreasing probability") that corresponds to a first feature; and (red eye)

adjusting (Fig1: correct red eyes) a second pixel ([0091] "correction mask specifically pinpoints those pixels that have to be corrected") by an amount determined

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based on a second probability value ([0102] "Pixels along the borderlines receive a gradually decreasing probability") that corresponds to a second feature. (red eye)

**() Regarding Claim 12,37:**

12. The method of claim 1, wherein:

the image is a photographic image including an eye exhibiting a redeye effect; and (Fig1: correct red eyes)

the identified region of pixels corresponds to a portion of the eye that exhibits the redeye effect. (Fig1: correct red eyes)

**() Regarding Claim 13,38:**

13. The method of claim 1, wherein:

the feature is one of skin, sclera, or redeye. (Fig1: correct red eyes)

**() Regarding Claim 14,39:**

14. The method of claim 1, wherein adjusting the color includes: adjusting the color to match a representative color ( $R_{new}$ ) for the region; (Eq. 1.3)

and using the probability values (mask. [0103]) to modulate the amount of adjustment. ([0102] "Pixels along the borderlines receive a gradually decreasing probability")

**() Regarding Claim 15,40:**

15. The method of claim 14, wherein the representative color ( $R_{new}$ ) represents an iris color for the eye. ([0019] [0104] "iris")

**() Regarding Claim 16,41:**

16. The method of claim 1, wherein adjusting the color includes:  
desaturating (Eq 1.3) the color of pixels in a subregion (mask) of the region; and (eye)  
using the probability values (mask) to modulate the amount of desaturation. ([0102]  
"Pixels along the borderlines receive a gradually decreasing probability". [0103] "...mask  
represents actual probability values for eye defects...")

**() Regarding Claim 17,42:**

17. The method of claim 16, wherein:  
the subregion (mask) is the center of the region. (eye)  
([0102] "Pixels along the borderlines receive a gradually decreasing probability".  
[0103] "...mask represents actual probability values for eye defects...")

**() Regarding Claim 18,43:**

18. The method of claim 16, wherein:  
the subregion is an outer rim of the region. ([0102] "Pixels along the borderlines  
receive a gradually decreasing probability".)

**() Regarding Claim 19,44:**

19. The method of claim 1, wherein adjusting the color includes:  
defining a region of pixels in the image that corresponds to the pupil of the eye, ([0091]  
"centers of the eyes")

each pixel having a luminance value; and ([0020] "The value component of the HSV colour space is a measure of its brightness")

reducing the luminance value (Eq 1.3) of one or more of the pixels in the region.

**() Regarding Claim 20,45:**

20. The method of claim 1, wherein adjusting the color includes:

adjusting the color of a pixel based on the color values of pixels surrounding the pixel.

([0026] "correction mask data can be directed to binary dilation and also be influenced by a Gaussian smoothing or the like.")

**() Regarding Claim 21,46:**

21. The method of claim 20, wherein adjusting the color of a pixel based on the color values of pixels surrounding the pixel includes:

defining a window of pixels surrounding the pixel; (mask)

determining a representative color for the window of pixels; ([0029] "minimum of the green colour channel and the blue colour channel")

and adjusting the color value of the pixel (Eq 1.3) to match the representative color for the window. ([0029] "minimum of the green colour channel and the blue colour channel")

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***Conclusion***

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to MAX SHIKHMAN whose telephone number is (571)270-1669. The examiner can normally be reached on Monday-Friday 8:30AM-6:00PM EST.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, JINGGE WU can be reached on (571) 272-7429. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Max Shikhman

4.13.2008

/Jingge Wu/

Supervisory Patent Examiner, Art Unit 2624